

## CLAIMS

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1. A method of estimating a cost related to at least one of computer software development, computer software maintenance, and information technology services, said method comprising:

reading a sample of computer code in accordance with a sampling technique; and

calculating a cost for a larger subset of the computer code from said sampling,

wherein at least one of said reading, said sampling, and said calculating is executed on a computer.

2. The method of claim 1, wherein said cost is for at least one of:

porting said software to another platform;

maintenance of said software;

application portfolio management of said software; and

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legacy transformation of said software.

3. The method of claim 1, further comprising at least one of:

calculating a variability of said cost due to sampling error; and

calculating a probability that said cost will be lower than the cost that would have been estimated by using a sample including 100% of the code.

4. The method of claim 1, further comprising:

categorizing each computer sampling into one of N categories of difficulty, N being an integer greater than 1.

5. The method of claim 1, further comprising:

reading into a computer at least one of a rule by which said sampling is to be executed, and cost parameters to be used for said calculating.

6. The method of claim 4, wherein said categorizing comprises at least one of:

a user-assisted technique in which a user enters a category for each said sampled computer code lines; and

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an automated technique in which a software tool parses each said sampled computer code line and generates a category for each parsed computer code line.

7. The method of claim 1, wherein said sample is taken using at least one of:

simple random sampling;

cluster sampling; and

stratified sampling.

8. The method of claim 1, wherein the sample includes at least one of:

a line of code;

a file or module from an application or set of applications;

an initial part of a file or a module from an application or set of applications; and

an application from a set of applications.

9. A method of estimating necessary amounts of resources for an effort related to at least one of computer software development, computer software maintenance, and information technology services, said method comprising:

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reading a sample of computer code in accordance with a sampling technique; and

calculating resources for a larger subset of the computer code from said sampling,

wherein at least one of said reading, said sampling, and said calculating is executed on a computer.

10. The method of claim 9, wherein said resources are for at least one of:

porting said software to another platform;

maintenance of said software;

application portfolio management of said software; and

legacy transformation of said software

11. The method of claim 9, further comprising at least one of:

calculating one or more variabilities of said amounts of resources due to sampling error; and

calculating a probability that said amount of resources will be less than the amounts of resources that would have been estimated by using a sample including 100% of the code.

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12. The method of claim 9, further comprising:

categorizing each computer sampling into one of N categories of difficulty, N being an integer greater than 1.

13. The method of claim 9, further comprising:

reading into a computer at least one of a rule by which said sampling is to be executed, and resource parameters to be used for said calculating.

14. The method of claim 9, further comprising:

creating at least one of a resource plan and a work breakdown structure based on the calculated resources.

15. The method of claim 11, further comprising:

creating a risk management plan based on calculated risk parameters.

16. The method of claim 12, wherein said categorizing comprises at least one of:

a user-assisted technique in which a user enters a category for each said sampled computer code lines; and

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an automated technique in which a software tool parses each said sampled computer code line and generates a category for each parsed computer code line.

17. The method of claim 9, wherein said sample is taken using at least one of:

- simple random sampling;
- cluster sampling; and
- stratified sampling.

18. The method of claim 9, wherein the sample includes at least one of

- a line of code;
- a file or a module from an application or set of applications;
- an initial part of a file or a module from an application or set of applications; and
- an application from a set of applications.

19. A business method comprising at least one of:

- estimating a cost for an effort related to at least one of computer software development and information technology (IT) services, said estimating method comprising:

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sampling computer code in accordance with a sampling technique;  
calculating said cost for a larger subset of the computer code from  
said computer code from said sampling; and  
calculating at least one of a risk probability and an estimation  
precision for said cost,  
wherein at least one of said reading, said sampling, and said calculating is  
executed on a computer;  
providing a result of said calculating to a party; and  
receiving said result of said calculating.

20. The business method of claim 19, wherein said effort comprises at least one  
of:

porting said software to another platform;  
maintenance of said software;  
application portfolio management of said software; and  
legacy transformation of said software.

21. A business method comprising at least one of:

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estimating a necessary amount of resources for an effort related to at least one of computer software development and information technology (IT) services, said estimating method comprising:

sampling computer code in accordance with a sampling technique;  
calculating said necessary amount of resources for a larger subset of the computer code from said computer code from said sampling; and calculating at least one of a risk probability and an estimation precision for said estimate of amount of resources,

wherein at least one of said reading, said sampling, and said calculating is executed on a computer;  
providing a result of said calculating to a party; and receiving said result of said calculating.

22. The business method of claim 21, wherein said effort comprises at least one of:

porting said software to another platform;  
maintenance of said software;  
application portfolio management of said software; and  
legacy transformation of said software

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23. An apparatus to estimate at least one of a cost and an amount of necessary resources for an effort related to computer software development, computer software maintenance, and information technology services, said apparatus comprising:

a memory to store a computer code involved in an effort related to software development;

a graphic user interface to allow said computer code to be selected; and

a sampling module to allow said computer code to be sampled in accordance with a sampling technique.

24. The apparatus of claim 23, wherein said effort comprises one of:

porting said computer code to another platform;

maintaining said computer code;

performing application portfolio management on said computer code; and

performing legacy transformation on said code.

25. A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to

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perform a method of estimating at least one of a cost and a necessary amount of resources for an effort related to computer software development, computer software maintenance, and information technology services, said method comprising:

reading a section of computer code;

sampling said computer code in accordance with a sampling technique;

and

using said sampling to calculating said at least one of cost and amount of resources for a larger subset of the computer code from said computer code from said sampling,

wherein said sampling, and said calculating is executed on a computer.

26. The signal bearing medium of claim 25, wherein said effort comprises one of:

porting said computer code to another platform;

maintaining said computer code;

performing application portfolio management on said computer code; and

performing legacy transformation on said code.

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27. An apparatus to estimate a cost for an effort related to computer software development, computer software maintenance, and information technology services, said apparatus comprising:

means for storing a computer code involved in an effort related to software development;  
means for allowing said computer code to be selected; and  
means for allowing said computer code to be sampled in accordance with a sampling technique.

28. The apparatus of claim 27, wherein said effort comprises one of:

porting said computer code to another platform;  
maintaining said computer code;  
performing application portfolio management on said computer code; and  
performing legacy transformation on said code.

29. The apparatus according to claim 27, further comprising:

means for calculating said cost for a larger subset of the computer code from said computer code from said sampling.

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30. The apparatus according to claim 29, further comprising:

means for calculating at least one of a risk probability and an estimation precision for said cost.

31. The apparatus of claim 27, further comprising:

means for categorizing each computer sampling into one of N categories of difficulty, N being an integer greater than 1.

32. An apparatus to estimate an amount of necessary resources for an effort

related to computer software development, computer software maintenance, and information technology services, said apparatus comprising:

means for storing a computer code involved in an effort related to software development;

means for allowing said computer code to be selected; and

means for allowing said computer code to be sampled in accordance with a sampling technique.

33. The apparatus of claim 32, wherein said effort comprises one of :

porting said computer code to another platform;

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maintaining said computer code;  
performing application portfolio management on said computer code; and  
performing legacy transformation on said code

34. The apparatus according to claim 32, further comprising:

means for calculating said amount of necessary resources for a larger subset of the computer code from said computer code from said sampling.

35. The apparatus according to claim 32, further comprising:

means for calculating at least one of a risk probability and an estimation precision for said amount of necessary resources.

36. The apparatus of claim 32, further comprising:

means for categorizing each computer sampling into one of N categories of difficulty, N being an integer greater than 1.

37. A method for deploying computing infrastructure, comprising integrating computer-readable code into a computing system, wherein the code in

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combination with the computing system is capable of performing the method of claim 1.

38. A method for deploying computing infrastructure, comprising integrating computer-readable code into a computing system, wherein the code in combination with the computing system is capable of performing the method of claim 9.

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